

B.Sc First year Zoology (Honours)

Paper-1

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Classification of Phylum Mollusca:

Phylum Mollusca are divided into six classes.

Class 1. Monoplacophora (Gk. monas- one, plax- plate, pherein- bearing):

The shell is spoon or cup shaped. They have die characters of both the phylum Annelida and phylum Mollusca.

Example:

Neopilina.

Class 2. Amphineura (Gk. amphi- both + two neuron = nerve):

There is a present non-ganglionated nerve ring around mouth with two pairs of interconnected nerve cord.

Examples:

Chaetopleura (Chiton).

Class 3. Scaphopoda (Gk. scapha- boat, podos-foot):

Shell is tubular and open at both ends.

Example:

Dentalium.

Class 4. Gastropoda (Gk. gaster- belly, podos- foot):

Shell is made up of one piece.

The early embryo is symmetrical but during development the body twists showing torsion so that the body becomes asymmetrical. It includes the largest number of molluscs e.g., Pila, Umax, Cypraea (Cowrie), Helix (garden snail), Aplysia (sea hare), Doris (sea

lemon), *Limnaea*, (pond snail), *Planorbis*, *Patella* (true limpet), *Turbinella* (Shankh), *Creseis* (Sea butterfly).

Class 5. Pelecypoda or Lamellibranchiate or Bivalvia (Gk. pelekus- hatchet Podos foot):

Shells is made up of two halves.

Examples:

Unio, *Mytilus* (Sea mussel), *Teredo* SpwoS EnZ (razor shell or razor clam), *Solen* (razor fish or razor shell), *Ostrea* (edible oyster), *Pecten* (scallop), *Pinctada* (Pearl oyster).

Class 6. Cephalopoda (Gk. kephale- head, podos- foot):

Head and foot region combined and modified into a structure which has eyes and eight tentacles, hence the name cephalopod or 'head foot'. Cephalopods are regarded at the top of invertebrates evolution in terms of learned behaviour they exhibit. Shell is external (*Nautilus*), internal (*sepia*) or absent (*octopus*).

Examples:

Sepia, *Loligo*, octopus, nautilus, (pearly nautilus). Some cephalopods are the largest invertebrates.

Evolutionary Precursor of Molluscs:

A "living fossil" named *Neopilina* discovered in 1952 from the Pacific Ocean, shows metameric segmentation which is not a characteristic of molluscs. *Neopilina* has 8 pairs of muscles, 5 or 6 pairs of gills, and 5 pairs of nephridia.

Metameric segmentation and presence of the trochophore larva in both annelids and molluscs suggest that molluscs have descended from the annelids. Thus, the annelids are the evolutionary precursor of molluscs. *Neopilina* is a "connecting link" between Annelida and Mollusca.